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Challenges in local governance: Public-private partnerships as an instrument for local transport policies

Abstract

Public-private partnerships (PPP) as suppliers for public services have been increasingly used as an instrument for improving public policy, mostly when it comes to reducing costs and improving public transport. The purpose of this paper is to carry out a comparative analysis between two metropolitan areas in Mexico and to identify the main causes that explain the performance and difficulties of a hybrid supplying model. The transport sector was chosen not only for its great importance in urban areas but also due to its representativeness to highlight the specificities of PPPs. The Mexican experience has shown that infrastructure projects tend to underestimate their costs and to overestimate their demand, even with supposed formal validation processes. In this sense, even though PPPs have been generally promoted by international organizations, there is a prevailing need to explore the implications and challenges that emerge from this kind of governance tools. Process tracing was conducted as a methodological technique within a comparative approach using qualitative information.

Keywords: public-private partnerships, transport, local public services, public policy

JEL Classification Codes: H76, L98, N76, O18, R48

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Wyzwania lokalnego współzarządzania – partnerstwa publiczno-prywatne jako instrument lokalnej polityki transportowej

Streszczenie

Partnerstwa publiczno-prywatne (PPP) jako dostawcy usług publicznych są coraz częściej wykorzystywane jako instrument usprawniający politykę publiczną, głównie jeśli chodzi o redukcję kosztów i poprawę transportu publicznego. Celem tego artykułu jest przeprowadzenie analizy porównawczej między dwoma obszarami metropolitalnymi w Meksyku oraz identyfikacja głównych przyczyn wyjaśniających wydajność i trudności hybrydowego modelu zaopatrzenia. Sektor transportu został wybrany nie tylko ze względu na jego duże znaczenie na obszarach miejskich, ale również ze względu na jego reprezentatywność dla określania specyfiki PPP. Meksykańskie doświadczenia pokazały, że w projektach infrastrukturalnych zwykle nie docenia się kosztów i przecenia popyt, nawet przy rzekomych formalnych procesach walidacji. W tym sensie, mimo że PPP były ogólnie promowane przez organizacje międzynarodowe, istnieje istotna potrzeba badania implikacji i wyzwań wynikających ze stosowania tego rodzaju narzędzi współzarządzania. Śledzenie procesów jest stosowane jako technika badawcza w ramach podejścia porównawczego z wykorzystaniem informacji jakościowych.

Słowa kluczowe: partnerstwa publiczno-prywatne, transport, lokalne usługi publiczne, polityka publiczna

Kody klasyfikacji JEL: H76, L98, N76, O18, R48

The service provision at the local level makes local governments face a decision between choosing the development of the internal production of goods and services or relying on private companies. The opening to cooperation between public and private sectors can be based on reasons linking a specific service to areas of large technical specialization and expanding markets (Cabrero, 1999). In this situation, the apparently convenient position for governments has provoked the relative privatization of services. That is why this work discloses the idea that public-private cooperation for the provision of public services at the local level represents a dilemma for which some necessary and sufficient conditions have to be considered and fulfilled in order to make the decision to develop or not a public-private partnership (PPP). The question to be solved is if PPPs are an effective instrument in dealing with public problems or, in other words, knowing which are decisive facts for the success (or failure) of PPPs in providing public services.

As it has attracted the attention of scholars for its study and of governments for its practice, the topics around public-private partnerships (PPPs) still need to be taken

to a local level and to several services provided in that field. Without going deeply into the definition of the PPP concept, there must be an initial notion of what a PPP is. These associations, unlike a pure external contract, involve a long-term collaboration for specific purposes between government and private companies (Van Ham, Koppenjan, 2001; Koppenjan, Enserink, 2009; Greve, 2006). Its proliferation in contexts other than the Anglo-Saxon, consequently, makes a PPP demand attention from its researchers in Latin America, for example. In addition to being an object of study by themselves, there are several approaches from which these organizational hybrids can be tackled.

This research proposes an approach that combines the organizational structures theory, contracts, and transaction costs. First of all, this combination is necessary because the creation of a PPP involves institutional rearrangements that require the collaboration of multiple organizations. Secondly, because in order to give support to the agreements necessarily held by the governments and companies, there are several legal instruments in which the distribution of responsibilities between the parties is required. Finally, there is a reason to use the transaction-costs approach because organizational changes and formalization of relations between the government and companies under a PPP model produce together costs that are far from foreseeable and are not considered in the planning phase.

As the question about providing a public service directly from the public sector or doing so with private investment seems to have been overcome, the next struggle for local governments is to decide what kind of enterprises should collaborate with them. When governments consider an external supplier, this could often be through a public-private partnership. The existence of these collaborations between the public sector and firms is justified generally by two main reasons: 1) PPPs relieve governments from some budget pressures and 2) generate value-for-money. The evidence on the performance of these hybrid organizations in providing urban transport shows a different scenario (Hodge, Greve, 2007).

As the main purpose, this research tries to answer a general question: which factors influence the performance of public-private partnerships as providers of local public services? Still, far from answering this question, and related to the specific cases that have been selected, there is a need to identify the determinants of the performance of public-private partnerships in the Mexican Bus Rapid Transit (BRT). In other words, this article aims to find what problems public-private partnerships must face when public transport shifts its provision method and how they deal with its failures.

To tackle these questions, it is essential to emphasize that causal relationships explain the phenomenon, and that culminates in the observable performance of a PPP, implying consequences between events that are not immediately connected

in a temporal proximity. On the contrary, it emphasizes the fact that the decisions made between governments and private companies in design stages for alternative modality in a service provision, in environments that show the absence of institutional capabilities, with use of spaces of uncertainty and with celerity by its promoters, reduce the possibility of success in the service operation. Framed in long-term agreements, all these allocate the operation of a public service to possible failures and to the generation of extraordinary transaction costs resulting from the need for amendments and adjustments of the conditions in which the service is provided.

Theoretical approach

On several occasions in which private contracting is the chosen alternative for a public service provision—or at least there is an involvement of organizations from the private sector—it will be necessary to consider PPP training. PPPs represent changes in the organizational model every time that governments need to establish relationships and make transactions with markets, provoking the provision of services to be not entirely governmental, but shared with private companies. Despite the recognition of different current visions about PPPs, in order to have a basic notion of these, it is possible to start with the generally cited definitions in recent literature. These definitions refer to PPPs as cooperation of a determined durability between public and private actors that jointly develop products and services, sharing risks, costs, and resources that are connected to these products and services (van Ham, Koppenjan, 2001: 598) or as a “long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears a significant risk and management, and payment is linked to performance” (World-Bank, 2014; cited in Benítez-Ávila et al., 2018). However, these definitions fail to distinguish a PPP from any other type of outsourcing fully.

Every PPP researcher might be using a different approach for the PPP analysis. For example, Hodge and Greve say that the term PPP can be adopted at four different levels. Those levels are: 1) when a specific project is discussed, 2) referring to a specific infrastructure delivery technique; 3) talking about the preference for a policy, or 4) when it is debated as a governance mechanism (Boardman et al., 2015). However, whatever level the term is applied in, a PPP requires an organizational reconfiguration, and although Hodge and Greve (2013) are not so precise about the reason for carrying out the analysis to that level (or to emphasize the relevance of doing so), the importance of institutional rearrangements is diluted by giving priority to a trivial leveling of the discussion about PPP (Boardman et al., 2015).

However, Hodge and Greve (2005: 5) suggested another way of conceiving PPPs based on the idea of them as policy networks, basically defined as “special arrangements for public-private cooperation” and, more recently, they have stated that the bigger issue is “the need to think about [long-term infrastructure contract] P3, not simply as a project delivery arrangement but, in a more sophisticated way as a phenomenon” (Hodge, Greve, 2013; cited in Hodge, Greve, 2016). Nevertheless, this does not mean that PPPs should not be considered as a public policy instrument as it is, for example, in Dussauge and Pardo (2018).

Following Hodge and Greve (2005), PPPs in their organizational aspect have two dimensions: financial and organizational, both interacting with each other. The first one refers to how committed the actors of the public and private sector are in PPPs; while the other one refers to how closely the relationship between these actors is organized. The relationship between both dimensions gives, as a result, a typology by which PPPs can be classified.

Table 1. PPPs typology according to financial and organizational relationships

	Finances/Organization	
↑ ↓	Close financial relationship	Close organizational relationship
		Joint venture companies
		Joint-stock corporation
		Joint development projects
		Loose organizational relationship
	Loose financial relationship	
		Policy communities
		Issue networks

Note: BOOT refers to a PPP consisting of four phases: Build, Own, Operate, and Transfer. BOT refers to phases Build, Own, and Transfer.

Source: Hodge, Greve (2005).

In addition to financial and organizational dimensions, there are other analytical frameworks through which PPPs can be studied. For example, one is the kind of service to be provided: social policy, infrastructure, prisons, transportation, or others. Likewise, it could be studied according to the possible contracting models (DeHoog, 1990): competitive model, negotiation model, and cooperation model. The classification could even be made according to the empirical evidence. The study is based on political rhetoric, legal contracts, or historical results (Hodge, Greve, 2015).

Within the framework of possible alternatives for external recruitments, the public sector has followed an increasing trend to develop projects under PPP models. The two basic premises underlying the opening of such projects are, first of all, that a PPP model reduces pressure on the government budget and, secondly, that better value for money (VFM) is generated in the public infrastructure provision (Hodge,

Greve, 2007). The VFM, in its simplest form, is defined as a measure of the scope for achieving cost savings when a public infrastructure project is carried out through a PPP, concerning a traditional approach of direct governmental provision (Siemiatycki, Farooqi, 2012). In other words, a project comparison is made between situations in which private investment is available against the same project in a situation in which there is no private investment.

The way to ensure that participants of the private sector generate the VFM by operating efficiently is through the transfer of a sufficient but appropriate risk amount (OECD, 2012). The foregoing should be based on contract application defining as much as possible the co-responsibility between the government and private entities. In principle, the party that in a contractual relationship exhibits the greater capacity to manage risk should be the one to assume it. Nonetheless, if those situations are not manageable by any of the parties, the management may come from exogenous sources, or, in case it is necessary, the government is in charge of taking control (OECD, 2012).

Outsourcing is not always cost-efficient, since several constraints figure in how policymakers make decisions about the public services they provide (Carver, 1989). These constraints have more to do with routines, experience, budgetary resources, motivations generated by the potential impact of the service delivery, and the political realities of the environment (Carver, 1989). The imperfection of the markets the public sector calls upon to cover the service demand works in favor of the bounded rationality in which decisions are made. Therefore, outsourcing cannot be seen only as a result of a selection on the grounds of efficiency. Outsourcing, as such, can only be considered as one of several decisions that public service provision requires. That is to say, the policy process – or policy cycle that involves planning, construction, implementation, and monitoring stages in providing a public service – includes several decisions that do not necessarily require single and simple outsourcing, but the involvement of participants from different sectors, and even their merging in more comprehensive collaborative activities.

Both by the creation of relationships between private enterprises and governments, as well as by the diversification in the stages in which their actors interact, PPP projects imply the generation of transaction costs. These costs are referred as “the costs of carrying out a transaction by means of an exchange on the open market” (Coase, 1961; cited in Sánchez, Gago, 2010: 392) and could be presumably greater than those generated by service provision that does not require the dialogue between the agent and the principal. For example, Sánchez and Gago (2010) refer to two ways for which transactions costs arise: “the need to manage the tendering stage [of the contracts] more effectively in order not to jeopardize the goal of VFM [and] due to long and

complex contract negotiations and delays in project delivery” (p. 390). These two types of transaction costs are also classified as ex-ante and ex-post, respectively. The first of them refers to search and information costs, and bargaining costs; the second one regards the existence of policing and enforcement costs to ensure contract fulfillment (Sánchez, Gago, 2010).

Regarding transaction costs in PPP projects, the difficulty of capturing transaction costs in the comparison between traditional projects (direct provision) and partnership projects were noticed more than a decade ago (Hodge, Greve, 2007; Boardman et al., in: Hodge, Greve, 2005). There are studies that associate transaction costs and PPP projects, but in a merely contracting stage (Schepper et al., 2015; Sanchez, Gago, 2010, 2016), suggesting that researchers (such as in the case of this work) have a margin on the possibility of covering operational stages. However, it is necessary to take the proposal with caution because the achievement of an accurate transaction costs calculation (or at least an estimate) in the development of PPP projects can be misleading, since comparisons are made based on hypothetical scenarios.

Contextualization

Regarding the fact that PPPs have served as an instrument at the local level for the provision of urban public transport services, it is worth contextualizing the development of this service in the case of Mexico. Typically, Mexican urban transport is divided into two types: conventional and mass. Conventional systems commonly base their operation on characteristic wagons, popularly called *combis* (because of the Volkswagen classical wagon model, which was the vehicle used years ago in the provision of conventional transport), and typical old urban buses. Mass systems depend on the need for mobility in every city. Huge metropolitan cities have implemented metro or subway metro systems (Mexico City, Guadalajara, and Monterrey so far). However, a group of some other big cities (also metropolitan cities, but not as big as Mexico City, Guadalajara or Monterrey) has tended to adopt BRT models or just Bus Rapid Systems. Commonly, the latter do not necessarily use a confined lane or station platforms as the BRT does.

The historical evidence in city development suggests that there is an imbalance between supply and demand for urban transport services. Given the supply of public services and considering that Mexican transport faces problems of urban expansion (with time there are bigger, densely populated urban areas and small towns become cities), one of the phenomena identified about the supply of conventional transport (typical buses and *combis*) is the generation of a vicious circle which starts

with increasing government investments, but with a shorter useful lifecycle of the assets. That is to say, the urban population increasingly manifest a need for transport, which has become insufficient, and local governments (usually state governments) have chosen to invest by themselves, without relying on private participation, in some not so profitable nor long-lasting vehicles/systems. This makes new mobility needs requiring more motor vehicles, which, in turn, demand new investments and road infrastructure that will never meet the real transport needs of a city (CAF, 2011). In the meantime, other means of transport such as the subway system (hereinafter referred to as *metro*), which expanded in the seventies of the 20th century, have hampered their growth due to the power quotas from the bus drivers (specifically in Mexico City) (CAF, 2011).

In the case of the projects registered to the Federal Mass Transportation Support Program (PROTRAM by its acronym in Spanish),² the improvement proposals of mass transport have tended to implement BRT systems, mainly promoted by state governments that have been interested in doing so. Unlike other modes of transport such as the metro or other types of rail transport, a BRT system represents a less expensive alternative due to the technological needs involved in its installation.

Regarding the demand for urban transport services in Mexico, it is important to highlight that despite the positioning the BRT modality has had with other means of transport, and although it has succeeded in penetrating the proposal for mobility policies in several cities, it has not reached the demand the private car or conventional transport have. According to the National Survey of Mobility and Transport (ENAMT by its acronym in Spanish), conducted by the National Autonomous University of Mexico between October and November 2014, it is known that, until then, about one and a half million people over 15 years old used the BRT to commute every day.

In relation to the growth of BRT projects that rely on a PPP model, on the one hand, ambiguous criteria prevail within the regulations applicable to PPP for evaluating the feasibility of infrastructure projects where the VFM does not end up having great weight. On the other hand, PROTRAM, as the main financing instrument, has encouraged the development of infrastructure projects for mass transport. As a result, proposals subject to validation for BRT projects have increased in their number as an alternative for transport policies for state governments. But, in addition

² PROTRAM operates as a trust applicable to several forms of mass transport. These types of projects require planning, construction, and operation of transport systems that can hardly be the sole responsibility of the State. Technical specificity, at all stages of each project, requires the intervention of actors with experience in implementing some specific technology. In this sense, local governments have shown openness to projects arising as PPPs.

to considering the operation of the program, it becomes essential to look at the set of institutions and actors that intervene in the cycle of projects that are candidates to be supported by PROTRAM. All this, both regulatory framework and project approval mechanisms, is registered in a slow evolution of public transport in Mexico, with apparently rigid preferences of the citizens, despite the presence of new displacement alternatives.

Table 2. Frequency of the use of transport in Mexico

	Bus Rapid Transit (BRT)		Bus/microbus		Car	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Daily	1,545,904	1.94	30,591,212	38.32	17,349,983	21.74
Often	3,473,983	4.35	28,401,929	35.58	12,672,509	15.88
Never	73,681,728	92.31	20,816,734	26.08	49,125,275	61.54
Does not know	63,074	0.08	-----	-----	7,277	0.01
NA	1,056,036	1.32	10,850	0.01	665,681	0.83
Total	79,820,725	100.00	79,820,725	100.00	79,820,725	100.00

Source: UNAM.

Methodology

Located in the qualitative area, the research follows an inductive process, going from particular to general in order to generate a theoretical perspective (Hernandez et al., 2014), based on process tracing as part of comparative historical analysis (CHA). In this sense, it is worth remembering that although qualitative studies, specifically process tracing, can be used for theory testing, these are useful for its development (George, Bennett, 2005). In most qualitative studies, theories are generated in the research process, but above all, they are a product of the study itself (Hernández et al., 2014). For the purposes of this research, a study with the qualitative-inductive approach has been chosen because the case analysis does not start from the use of quantitative databases from which conclusions can be drawn as a mere inferential process. According to Arellano (1998), induction (as a methodological conductor in this research) jumps to its conclusion instead of deriving it literally from given premises, drawing conclusions from them through some extractive process.

As a mere way to differentiate among types of sequences that the CHA follows, it is necessary to identify both the causal and temporal order.

Table 3. Sequences in the comparative-historical analysis

Causally ordered sequence	Temporally ordered sequence
$X \rightarrow A \rightarrow B \rightarrow C \rightarrow Y$ $X \rightarrow A \rightarrow B \rightarrow C \sim Y$	$X \text{---} A \text{---} B \text{---} C \rightarrow Y$ $X \text{---} A \text{---} B \text{---} C \sim Y$

Note: \rightarrow indicates a causal relationship; --- indicates lack of a causal relationship (the order matters); \sim indicates rejection (the explanation may be based on the rejection of occurrence of an event because of the occurrence of a previous event).

Source: Falletti, Mahoney (2016).

The performance of the BRT systems (or, more generally, the public service performance) currently analyzed is under the *causally ordered sequence* in Table 3. The starting points *X* correspond in this case to the creation of the PPP by uncompetitive processes. From the decision that gave rise to the PPPs of the analyzed cases until the current state of their functioning, there has been a series of events that make sense to the causal relationship between the primary cause and its most current consequence.

Table 4. Sufficiency and necessity in a process-tracing causal inference

		Sufficient for affirming causal inference	
		No	Yes
Necessary for affirming causal inference	No	1. Straw in the wind	2. Smoking gun
		a. Passing. Affirms the relevance of a hypothesis but does not confirm it.	Passing: Confirms a hypothesis
		b. Failing: Hypothesis is not eliminated but is slightly weakened.	Failing: Hypothesis is not eliminated but is somewhat weakened.
		c. Implications for rival hypotheses: Passing slightly weakens them. Failing slightly strengthens them.	Implications for rival hypotheses: Passing substantially weakens them. Failing somewhat strengthens them.
	Yes	3. Hoop	4. Doubly decisive
		a. Passing: Affirms the relevance of a hypothesis but does not confirm it.	a. Passing: Confirms a hypothesis and eliminates others.
		b. Failing: Eliminates a hypothesis.	b. Failing: Eliminates a hypothesis.
		c. Implications for rival hypotheses: Passing <i>somewhat</i> weakens them. Failing <i>somewhat</i> strengthens them.	c. Implications for rival hypotheses: Passing <i>eliminates</i> them. Failing <i>substantially</i> strengthens them.

Note: The test that combines the weakest levels of need and sufficiency is that of the straw in the wind if an event is tested, it does not affirm or eliminate a hypothesis (it is an irrelevant event or with very low explanatory power). The following test is the hoop test. With this test, the relevance of a hypothesis is affirmed (although it does not confirm it) if the event under test passes it; if it fails, the hypothesis is eliminated. The third test, with greater explanatory power, is that of the smoking gun, which has the power to confirm a hypothesis if it is passed; in case of failure, the hypothesis is not eliminated but weakens. The test with the greatest explanatory power is the double decisive, which can confirm the hypothesis, eliminating rival hypotheses, if overcome, and can eliminate the hypothesis, if it is not overcome.

Source: Collier (2011).

As shown in Table 4, the process design is based on the combination of necessity and sufficiency power to achieve causal inference. The relationship between necessity and sufficiency results in several levels of explanatory power. At the same time, this explanatory power is passed by four tests: a) straw in the wind, b) hoop test, c) smoking gun, and d) double decisive.

Regarding the terms used in process tracing and based on the definitions in Falletti and Mahoney (2016), “events are spatially and temporally delineated events [with general characteristics] that can be compared between cases” (p. 189). Then, the term *occurrence* is reserved for a particular happening of a single case (it is not necessarily comparable). A sequence refers to “a temporally ordered set of events that take place in a given context” (Falletti, Mahoney, 2016: 190), while a process refers to “a particular type of sequence in which the temporally ordered events belong to a single coherent mode of activity” (Falletti, Mahoney, 2016: 191).

It is necessary to consider that there are different variants in the application of process-tracing that, according to George and Bennett (2005), are: detailed narrative, use of hypotheses and generalizations, analytical explanations, and more general explanations. Although process tracing may use the detailed narrative technique of the sequences compared for a highly descriptive purpose, at the other end we find general explanations, which appeal to data or theories without enough information that would allow a detailed explanation. In the case of this research, the technique used is closer to the narrative side, but with the particularity of using tests of sufficiency and necessity (Van Evera, 1997; Collier, 2011; Bennett, Checkel, 2015; Falletti, Mahoney, 2015). There are basically four tests that are formed, in the combination of two dimensions (necessity and sufficiency), to test the logical approaches of a sequence (Table 3).

It is important to point out that, although the tests mentioned above used in process tracing aim to strengthen or eliminate hypotheses, its applicability in this work responds to the possibility of strengthening or dismissing arguments (not strictly hypotheses) based on the facts observed in the selected cases. The observational requirements to carry out the research make such a precise hypothesis formulation difficult. In other words, what the research looked for was to know, describe, and specify the atmosphere and events in which the phenomenon under analysis (PPP performance) occurs, but not to test a repertoire of statements (hypotheses) that allude to an imaginary set of possible scenarios.

It is also necessary to note that the use of process tracing in this kind of study is intended to complement other research methods. It does not exclude itself from the analysis that rests in statistical methods. Both qualitative and quantitative analyses provide different and complementary bases for causal inference (George, Bennett,

2005). Besides, in identifying causal patterns between comparable sequences, process tracing can contribute to the generation of theories and, rather than just testing them, must be able to adapt to the nature of the phenomenon under study.

Case selection

For the current research, two cases of BRT systems with similar characteristics have been selected, mainly because of their organizational structure and the process they followed until their effective implementation:

1. BRT Corridor *RUTA* in Puebla.
2. BRT Corridor *TUZOBÚS* in Hidalgo.

The first selection criterion was, in order to control by the financing source, to be a project registered to PROTRAM. Subsequently, the maturity of the project was considered along with comparable urban characteristics.

What to observe (measure) in the processes?

Although the importance of analyzing the factors that affect PPPs performance has been highlighted, it is necessary to have a base of parameters that allow for the assessment of those factors. In this regard, the study of PPPs, since its origin in the nineties of the 20th century, as a result of the Private Finance Initiative, has been raising several ways to measure its success or performance. As a reference, *the Guidelines for Successful Public-Private-Partnerships of the European Commission* (EC, 2003) and Volumes 1 and 2 of *A Framework for Evaluating the Implementation of the Private Finance Initiative Projects of the NAO* (2006a, 2006b) have some concordances on the aspects that reflect the PPPs success. The current work is based on six topics that are considered determinants of success in a PPP in the documents of the NAO (see Table 5).

Nonetheless, these factors cannot be taken as an infallible guide for success in a PPP project. The ultimate aim of a PPP should be to add value for money to the provisioning mechanism of a given good or service, but certain nuances prevent the completion of PPPs contracts, for example, by an inefficient risks allocation or, consequently, some opportunistic behaviors throughout the whole project life. More recently than the NAO's Guidelines, Almarri and Abuhijleh (2017) have constructed a generic framework for PPP implementation in developing countries, based on identifying best practices through a qualitative meta-analysis of the literature. This

framework consists of five phases (each one with sub-groups of functions) of a minimum required base for a PPP: 1) establish a PPP framework, 2) PPP implementation, 3) contract design, 4) bid management, and 5) PPP contract management phase (Almarri, Abuhijleh, 2017: 177). As can be seen, these phases suggest a very general framework for a PPP project, while the most important (and what is intended in this article) is to demonstrate what factors can lead a PPP to a certain performance (successful or unsuccessful).

Table 5. Decisive factors for a public-private partnership success

Topic	Definition
1. The project fits the authorities' requirements	The project design must seek an optimal adjustment according to the central business requirements of the authorities and continue delivering an optimal result.
2. The private financing initiative is the appropriate delivery mechanism	The acquisition decision through the private financing initiative and continuing with it must be clearly demonstrated and considered better than any other alternative.
3. Stakeholders support the project's progress	The relevant actors should be committed and satisfied with the development of the project, and the authorities should handle the interests of those actors appropriately.
4. There is good quality project management	The management of the project structure should be designed to ensure that the results of each phase are optimal for the business.
5. There is an optimal balance between cost, quality and flexibility	The authorities need to reach and maintain a quality-price agreement that can be affordable, consistent with the service requirements and providing a permissible financial structure of flexibility in case of a modification of business needs.
6. Effective risk allocation and management is taking place	The risks need to be assigned to the party that is best able to deal with them and due consideration of the trade-off between the transfer of risks and its cost is necessary.

Source: NAO (2006a).

Findings

Some of the evidence about the consequences produced by failures in urban transport administration under a PPP model leads to considering a set of multiple decisions in the early stages of a project. While governments and contractors absorb costs and risks in the operational stage, a big part of the performance outcome of a public service depends on how a project was justified. When urban transportation has shown a low performance, its failures relate to an inefficient validation process (after feasibility studies are submitted) in combination with low capabilities by contractors, producing overruns and high transaction costs.

The root of several failures experienced in the provision of public transport service through a PPP is the huge difference between the implemented and the original

projects, as well as the changes experienced during its planning and implementation processes (NAO, 1999; Flyvbjerg et al., 2002). It has been evident that the *design-bidding-construction* model, such as those applied to infrastructure projects, does not turn out to be the most cost-effective compared to the model of *design-construction* (Schneider, 2004). The advantage of following the design-construction model (or *turnkey* model) is that the infrastructure is ready for being operated by a specific entity, even if, at least in the Mexican context, it is required by law to open the construction process to bidding. That is, the promoting governments can endorse the infrastructure operation destined to provide the transport service, but intrinsically, the construction/conditioning of said infrastructure is part of a completely different bidding process.

The creation of a PPP, in which separate entities collaborate for the same purpose (but do not make up a company), and that is not based on bidding processes involving competition but the participation of former concessionaires, favors opportunistic behaviors and generates high transaction costs. These costs are reflected in contract modifications, forced replacement of contractors, coverage of gaps in the income of the system due to inefficiencies in the financial approaches to the service, and coverage of unforeseen costs due to the project's lack of foresight.

Two assertions that encompass the analyzed phenomenon can be drawn. First of all, not having a proof of the feasibility of PPP model projects to provide local public services as a result of including the participation of consulting firms (this being an intermediate event *between X and Y* according to the sequence in Table 3) causes subsequent imbalances in the operation of the provisioning system. Secondly, the awarding of long-term contracts to companies entrusted to the service operation (as another intermediate event), based on uncompetitive processes, contributes to the failures in the operation of the planned system. In both situations, transaction costs linked to decision making for corrective and/or contingent actions on the service are generated.

In order to identify some relevant characteristics in the development of a PPP for a service provision, some similarities and differences that the *RUTA* and *TUZOBÚS* have with each other will be presented hereunder, starting from very similar conditions.

Unlike the assumptions on which Ross and Yan (2015) argue, through which they claim that surplus in revenues for the concessionaires would motivate the modification (reduction) of the times of the contract so as not to be exceeded, in turn, the current net value expected from benefits, the case of the BRT in Mexico presents a situation that these authors did not foresee. Far from being a restricting reason for the capitalization of a company as part of a PPP, the generation of surplus incomes is a reflection of the service efficiency. Now, unlike the weakly sustained arguments by Ross and Yan (2015), in the case of the BRT in both Puebla and Hidalgo, it was

observed that, when demand was lower than anticipated, there were modifications to the concession. In the case of *RUTA*, it was withdrawn due to the lack of fulfillment of commitments on service revenues; while in the case of *TUZOBÚS* the state government had to absorb the differences in income and transfer money to the *SAPI* to fulfil the promised payments to its personnel. To argue that if the demand were lower than anticipated, the private entity would see its concession extended in order to allow for the recovery of its sunk costs (Ross, Yan, 2015), does not apply in this case. Such assertions do not hold, especially in the case of collection granting of *RUTA*.

Table 6. Differences and similarities between cases

Differences	Similarities	Factor (subject) to which the similarity is associated
Puebla has a second line in which the operator is an independent company created by its former carrier concessionaires. ³ Hidalgo has not yet determined the possibility of the second line.	Both systems overestimated the demand they could serve.	1,6
In Puebla, the same bidding process included the operation and collection services. Hidalgo launched separate biddings.	Both systems are operated on their first line by the Stock Market Promotion Company (<i>SAPI</i> by its acronym in Spanish), constituted by previous concessionaires of conventional transport.	1,3,4
In Puebla, there have been three rescue interventions by the government. There has been only one in Hidalgo.	Both systems granted concession agreements to operators and collection companies separately.	4,6
The collection companies in the two lines of <i>RUTA</i> are different from the original concessionaires. Hidalgo keeps intact the concession of the first collection concessionaire.	Both are currently managed by a decentralized body from the private sector.	3,4
	The <i>SAPI</i> s participants have had internal conflicts in both systems.	2,5,6
	They do not frame under PPP federal or state regulations.	1

Source: own work.

The causal chain, then, leads to a starting extreme in which a competitive bidding process does not exist. However, instead, it can find a set of provisions that undermine the future efficiency of a project as a result of the impossibility of having companies with better institutional quality to provide a service. Still, the process of awarding the concessions to the *SAPI*s in the both studied systems, no matter the criteria in the feasibility analyses, whichever were the requirements established for the provision of the service, would be of little use if the decision of granting the concession to former carriers was implicit. In other words, although the requirements did not correspond with the technical and organizational capacities of the private

³ *RUTA* operates three lines now, but the study includes only the first two lines.

sector, as well as the financial ones (Carroll, Steane, in: Osborne, 2000), it was the fact that the concession would have been granted to the SAPI that would be formed by the guild of transporters.

It should be noted that Line 1 of the *RUTA* system in Puebla began operations with fewer units than planned for, with demand far below than estimated and without the necessary equipment in the stations, and this is nothing more but a consequence of an unusable feasibility study. This type of study also faces the lack of a validation/verification process by the government itself or by third parties, which leads to a series of inaccuracies that impact project performance. Without the possibility of monitoring the operation of the project from its early stages, the possibility of a massive failure opens up.

The whole study of both cases (Puebla and Hidalgo) has been summarized in the following diagram. According to the process tracing made, necessary and sufficient conditions for PPP failure have been identified within the planning phase. As stated above, inefficient feasibility studies are located as the first step heading a service to its failure. If a PPP can ensure a shared investment for an infrastructure project, this is not a guarantee for a successful service. In the end, and in case of intervention, governments take control but assume additional costs as well. So, sharing risk in investment does not necessarily mean sharing risk in operation.

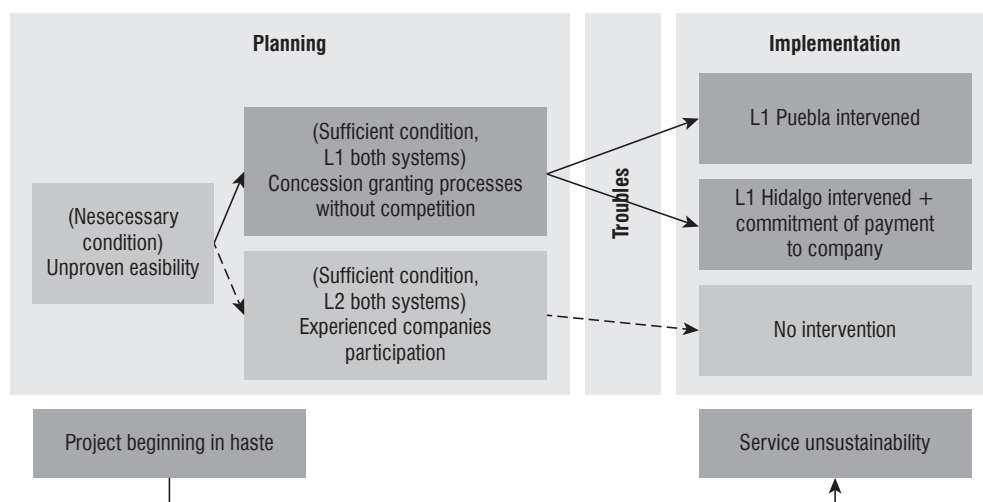


Figure 1. The sequence of a public-private partnership success for supplying urban transport

Note: Even when it was mentioned above that *RUTA* has suffered three interventions by the government (on operation and collection systems in Line 1, and on collection system in Line 2), this diagram considers only the operating systems which involve the main concessionaire in the functioning of the BRT service.

Source: own work.

In addition to unproven feasibility (necessary condition), there is a divergence between the sufficient conditions that drive a PPP either to its success or its failure. When concessions have been granted through an uncompetitive process (without the possibility for other companies to compete for a contract through a bidding process), experience points to scenarios in which governments tend to intervene to amend how the service is working. This situation was observable in the first lines of both systems, *RUTA* and *TUZOBÚS*, due to the incorporation of former concessionaires to the new company in charge of the system operation.

On the contrary, when concessions have been granted to experienced companies, the situation turns to a scenario in which the government has not intervened in the system operation. This has been the case of Line 2 in *RUTA*, when the operation was granted to TATPA, a company of ADO, one of the biggest transportation enterprises in Mexico. In this sense, there are two lines intervened (*RUTA* Line 1, *TUZOBÚS* Line 1) and one more without intervention (*RUTA* Line 2).

Beyond making the previous distinction, it has been necessary to elaborate on the functioning of the causal chain in the process tracing. Its relevance in the set of decisions involved in a PPP project has to be in line with the points in time when results may change in the function of previous events. Figure 1 shows how bad decisions in planning phases lead to a whole system failure. However, underneath the sequence of the main events in the more general sequence, some important facts are hidden.

The argument that an inefficient process to evaluate PPP feasibility drives unequivocally to failure turns out to be insufficient. Nonetheless, the main reason why PPP projects have failed to supply a mass transport service has been, as part of its feasibility studies, the overestimation of their demand. The consequence of this is breaking financial schemes, in which income stands quite below what has been projected. In this sense, a great cascade of errors in PPP accounts take place: a) the company in charge of service operation expects a certain amount of income; b) the effective demand looks lower than estimated in feasibility studies; c) income by fare does not cover infrastructure maintenance (rolling stock, stations, lanes) nor payroll; d) government claims for the system control and experiences expenditure overruns.

According to Global BRT Data, while the *RUTA* system expected demand of 107,758 users per day for Line 1, its effective demand is around 71,704 users per day. The same situation occurs in the *TUZOBÚS* system, where expected demand for Line 1 was 150,397 users per day, while the effective demand is around 114,000 users per day (Table 7).⁴

⁴ The data on the estimated demand depends on when a feasibility study was made, but Global BRT Data contains information as of 2016.

Table 7. Estimated demand and effective demand for BRT systems (users per day)

	<i>RUTA</i>	<i>TUZOBÚS</i>
Estimated demand	107,758	150,397
Effective demand	71,704	114,000
Gap	36,054 (33.5%)	36,397 (24.2%)

Source: Global BRT DATA; LOGIT; REHOVOT-ITS.

The difference between the estimated and effective demands is founded in the haste of governments to start a PPP project, but when wrongly estimated feasibility comes across reality, unsustainability rises to make the whole public service fail.

The mere availability of economic resources to finance a project can be enough motivation for governments to access funds, which also allows them to vent the budget pressure while fulfilling their function: offering public services (Hodge, Greve, 2007). However, accessing a trust fund, requiring collaboration with private entities within its regulations, does not necessarily imply savings in the total cost of the project nor its success. The total investment made by different parties can add up to sums which the government would not be able to cover on its own. Findings in this regard expose the fact that governments will, invariably, choose to implement the project that involves the creation of a PPP. Nonetheless, the comparison between scenarios in which the government directly provides a service and another in which it does that with private investment, all while meeting requirements to prove feasibility, has served only as a mere reference (justification) for an implementation decision that has been taken even before testing its convenience. The lack of technical support in feasibility studies combined with the private party's limited administrative capability creates several difficulties in sustaining the system that provides the service. Consequently, and paradoxically, the government then jeopardizes its finances not to abandon the operation of the system. In this sense, decisions on implementing a new system to provide a public service based on a PPP scheme do not seem to represent a dilemma for local governments because there is no concern about proving feasibility but starting its operation urgently.

Although the distribution of risks and responsibilities are clearly stated in the concession agreements, they are overlooked if the public party can change the service at its discretion. The cases in this study and the related BRT systems in two Mexican cities allude to breaches in concession contracts by the concessionaires after the service had been operating for a considerable amount of time. Even when experiencing this situation, the service was not interrupted. More specifically, Line 1 of the *RUTA*

system in Puebla began operations with fewer units than planned for, with demand far below than estimated and without the necessary equipment in the stations. That is to say, the primary liability for procuring a quality service should be the responsibility of additional actors other than those in charge of the service operation.

Some challenges surrounding PPP projects arise in cases such as *RUTA* and *TUZOBÚS*. Firstly, it is necessary to eliminate opportunism in public and private sectors regarding proving project feasibility. The participation of consulting companies with no more incentives than the economic ones bears consequences over a service implementation. Secondly, contracts on PPP projects need to present more completeness of how the project could work in the long term. Agreements between the government and concessionaires may suffer several changes during a PPP's life. More certain forecasts under cost-benefit analysis and efficient validation instances (third parties) are needed before projects start.

It will be necessary to change the approach to the performance of PPPs as a result of collective action between public and private sectors and look at the effects of very particular decisions and incentives that influence the results of an organization. A desire for a personal political career or the payment for making a bespoke document does not respond to public interests. However, it can cause a snowball effect in which a series of failures lead to decisions that end up breaking the whole system, which is doomed to perish.

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